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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/587,538

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Bin Li

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EXAMINER

CATTUNGAL, AJAY P

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2419

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/587,538	<b>Applicant(s)</b> LI ET AL.	
	<b>Examiner</b> AJAY P. CATTUNGAL	<b>Art Unit</b> 2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This office action has been examined. Claims 1-10 are pending.

#### ***Response to Amendment***

2. The amendment filed on May 18, 2009 has been fully considered but are not deemed persuasive.

- Claims 1 has been amended.
- Abstract has been amended.
- Specification title has been amended.

#### ***Response to Arguments***

3. Applicant's arguments with respect to claim 1-10 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order

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for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-6, 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Casey et al. (US 7,260,097) in view of Wakayama et al. (US 2001/0049739) in further view of non patent literature (NPL) Method to set up LSP using VLAN tag switching.

Re claim 1, Casey et al. discloses, a method for implementing a virtual leased line (VLL), comprising the steps of: configuring a virtual local area network (VLAN) label stack on the basis of VLAN QinQ (Col 4 lines 1-4); setting the range of VLAN labels (Col 6 lines 25-28); implementing a VLL by constructing a VLAN switching path (See fig 3 the dotted line represent the virtual leased line). Casey et al. does not disclose a method of configuring a VLAN QinQ switching device and a multi-protocol label switching (MPLS) device to communicate with each other and implementing switching between VLAN labels and MPLS labels; and extending a label distribution protocol (LDP) to support encapsulation of VLAN labels, so as to carry out VLAN label assignment and take the extended LDP as a topology discovery protocol for an L2 virtual private network. However Wakayama et al. disclose a method of configuring a VLAN QinQ switching device and a multi-protocol label switching (MPLS) device to communicate with each other and implementing switching between VLAN labels and MPLS labels (Para 70 lines 2-12 and Para 73 teaches how the switching is implemented between the VLAN labels and MPLS labels). Wakayama et al. does not disclose a method of extending a

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label distribution protocol (LDP) to support encapsulation of VLAN labels, so as to carry out VLAN label assignment and take the extended LDP as a topology discovery protocol for an L2 virtual private network. However the NPL teaches a method of extending a label distribution protocol (LDP) to support encapsulation of VLAN labels, so as to carry out VLAN label assignment and take the extended LDP as a topology discovery protocol for an L2 virtual private network (Page 13 lines 20-29). It would have been obvious to one having ordinary skill in the art at the time of the invention to use the virtual private LAN method of Casey et al with the interworking method MPLS device with VLAN QinQ device Wakayama et al. with the of LDP extension with new VLAN label type length value of NPL in order to establish and maintain L2 tunnels by distributing VLAN tags.

Re claim 2, note that Casey et al disclose a method for implementing a VLL according to claim 1, wherein the VLAN label stack is configured into a structure with one layer; or the VLAN label stack is configured into a structure with two or more layers, with labels in the outermost two layers in VLAN QinQ format (Col 3 line 65 - Col4 line 5) and labels in other layers in MPLS format (Col 5 lines 1-6).

Re claim 3, note that Wakayama et al. discloses a method for implementing a VLL, wherein the step of configuring a VLAN QinQ switching device and an MPLS device to communicate with each other further comprises the sub-steps of: if the VLAN QinQ switching device is at upstream, accomplishing conversion from VLAN QinQ encapsulation to MPLS encapsulation at an outgoing interface of the VLAN QinQ switching device (Para 58 lines 1-8 teaches of the conversion of a VLAN label to MPLS

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label ); if the VLAN QinQ switching device is at downstream, assigning an MPLS label with the same range as VLAN labels to the upstream MPLS device by the VLAN QinQ switching device, identifying the MPLS label at the incoming interface of the VLAN QinQ switching device, and treating the label as a VLAN label, with the upstream MPLS device not modified (Para 58 lines 1-8 teaches of the conversion of a VLAN label to MPLS label. Well it does not explicitly teach of the conversion taking place on a particular router. The conversion can be done on either router, as long as the conversion is done, the system does not pose as a hindrance to the transmission of data over the network. Having a the conversion take place on one router or have the conversion happen for the upstream on one router and the conversion for downstream on another is a matter of design choice).

Re claim 4, note that Wakayama et al. discloses a method for implementing a VLL, wherein the step of configuring a VLAN QinQ switching device and an MPLS device to communicate with each other further comprises the sub-steps of: if the VLAN QinQ switching device is at upstream, accomplishing conversion from VLAN QinQ encapsulation to MPLS encapsulation at an outgoing interface of the VLAN QinQ switching device (Para 58 lines 1-8 teaches of the conversion of a VLAN label to MPLS label ); if the VLAN QinQ switching device is at downstream, assigning a VLAN label to the upstream MPLS device by the VLAN QinQ switching device, with the upstream MPLS device modified to support the VLAN QinQ encapsulation (Para 58 lines 8-17, Para 70 lines 2-12 teaches of MPLS to VLAN conversion. Well it does not explicitly teach of the conversion taking place on a particular router. The conversion can be

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done on either router, as long as the conversion is done, the system does not pose as a hindrance to the transmission of data over the network. Having a the conversion take place on one router or have the conversion happen for the upstream on one router and the conversion for downstream on another is a matter of design choice).

Re claim 5, note that NPL discloses a method for implementing a VLL, wherein in the step of extending an LDP to support encapsulation of VLAN labels, so as to carry out VLAN label assignment and take the extended LDP as a topology discovery protocol for an L2 virtual private network, a VLAN label type length value used to carry the VLAN label is set in a label map message, so as to assign a VLAN label to an upstream device (Page 13 lines 20-29).

Re claim 6, Casey et al discloses a method for implementing a VLL according to claim 1, wherein identical VLAN labels entering via different interfaces are treated as different labels (Col 6 lines 59-62).

Re claim 9, note that NPL discloses a method for implementing a VLL, wherein in the step of setting the range of VLAN labels, the VLAN label range setting is implemented by adding a VLAN label request object that carries the VLAN label range value in a Resource Reservation Protocol-Traffic Engineering PATH message (Page 14 lines 27-29 and Page 15 lines 18-22 teaches, to use of label request object with VLAN tags label range in RSVP protocol).

Re claim 10, Casey et al. discloses a method for implementing a VLL, wherein in the step of implementing a VLL by constructing a VLAN switching path, the VLAN switching path is constructed with a tunnel multiplexing mechanism (Col 2 lines 4-12).

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Casey et al. (US 7,260,097) modified by Wakayama et al. (US 2001/0049739) in view of non patent literature (NPL) Method to set up LSP using VLAN tag switching in further view of Wu et al. (US 7,130,926).

Re claim 7, Casey et al. in view of Wakayama et al. in view of NPL discloses the claimed invention as claimed in claim 1 above. Casey et al. in view of Wakayama et al. in view of NPL does not disclose a method for implementing a VLL, wherein the VLAN QinQ switching device notifies a neighboring device that it is a VLAN QinQ switching device by adding a session parameter carrying a VLAN label range used by the VLAN QinQ switching device in an LDP initialization message. However Wu et al. discloses a method for implementing a VLL, wherein the VLAN QinQ switching device notifies a neighboring device that it is a VLAN QinQ switching device by adding a session parameter carrying a VLAN label range used by the VLAN QinQ switching device in an LDP initialization message (Col 2 lines 41-66 teaches how communication between two adjacent switching devices is accomplished using a LDP session. They teach how the adjacent switching devices discover each other, and indicate their presence in the network. The common labeling is transmitted between them, which lead them to setup LDP peers to establish a label switch path.). It would have been obvious to one having ordinary skill in the art at the time of the invention to use the virtual private LAN method of Casey et al. in view of Wakayama et al. in view of NPL with the method of using LDP initialization



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messages to set up communication between to adjacent switches of Wu et al. in order to provide an improved label control method for virtual private network.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Casey et al. (US 7,260,097) modified by Wakayama et al. (US 2001/0049739) in view of non patent literature (NPL) Method to set up LSP using VLAN tag switching in further view of Wu et al. (US 7,130,926).and in further view of Kompella et al. (US 7,136,374).

Re claim 8, Casey et al. in view of Wakayama et al. modified by NPL in view of Wu et al. discloses the claimed invention as set forth in claim 7 above. Casey et al. in view of Wakayama et al. modified by NPL in view of Wu et al. does not disclose a method for implementing a VLL, wherein after LDP initialization, the VLAN QinQ switching device assigns a VLAN label value within the set range when assigning a VLAN label to the neighboring device. However Kompella et al. discloses a method for implementing a VLL, wherein after LDP initialization, the VLAN QinQ switching device assigns a VLAN label value within the set range when assigning a VLAN label to the neighboring device (Col 4 lines 14-27 teaches a edge device identifying the presence of another edge device and establishing communication with the identified edge device and assigning the identified edge device a label, range of values, the virtual network it belongs to). It would have been obvious to one having ordinary skill in the art at the time of the invention to use the virtual private LAN method of Casey et al. in view of Wakayama et al. modified by NPL in view of Wu et al. with the method edge device establishing communication with other adjacent

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devices of Kompella et al. in order to provide an improved label control method of virtual private network.

### ***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AJAY P. CATTUNGAL whose telephone number is (571)270-7525. The examiner can normally be reached on Monday- Friday 7:30 - 5:00, Alternating Fridays OFF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pankaj Kumar can be reached on 571-272-3011. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. P. C./  
Examiner, Art Unit 2419

/Pankaj Kumar/

Supervisory Patent Examiner, Art Unit 2419